

Office of Environmental Health Hazard Assessment



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Arnold Schwarzenegger
Governor

February 15, 2007

Jennifer Sass, Ph.D.
Natural Resources Defense Council
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Dear Dr. Sass and Colleagues:

Thank you for your letter of November 3, 2006, requesting that the Office of Environmental Health Hazard Assessment (OEHHHA) initiate an early review of the current OEHHHA public health goal (PHG) for perchlorate. You noted that the primary reasons for your request are the availability of new scientific data on perchlorate, and the current efforts by the Department of Health Services to promulgate a perchlorate maximum contaminant level.

OEHHHA has carefully reviewed the request, has reviewed the new scientific information cited in your request, and has evaluated other relevant new data. These recent data include the study of perchlorate and thyroid hormone levels published by the Centers of Disease Control and Prevention (CDC) (Blount et al, 2006a), recent estimates of perchlorate exposure in nursing infants (Ginsberg et al., 2006), the recent CDC evaluation of perchlorate exposure in the general US population (Blount et al., 2006b), and new information on exposures to perchlorate in food and water.

The study of greatest relevance to the PHG is the study by Blount et al. (2006a) from the CDC's National Health and Nutrition Examination Survey (NHANES). OEHHHA has undertaken a thorough assessment and statistical re-analysis of these new data on perchlorate exposure and thyroid hormone levels. Our analysis has replicated the basic observation of Blount et al. (2006a) that perchlorate in urine is correlated with thyroid hormone levels in women who had low urinary iodide excretion. We have discussed our analyses with Dr. Blount, and have obtained some clarification from him on the data collection and chemical analysis methods used in NHANES. In addition, he has assured us that the CDC is continuing to develop new information on perchlorate, which we agree will provide further perspective on perchlorate's effects on thyroid hormones.

OEHHHA acknowledges the scientific importance of the new studies available on perchlorate. We think they are quite valuable in furthering our understanding of perchlorate exposure and the mechanisms by which perchlorate may affect the human thyroid. However, it would be premature at this time for OEHHHA to initiate an early review of the PHG for perchlorate,

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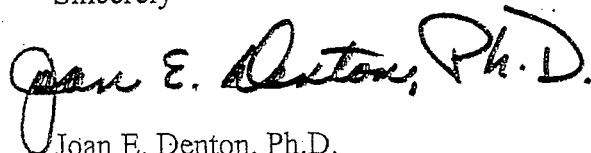
because further clarification is needed on key issues concerning the significance of perchlorate exposures. For example:

- The CDC is currently performing a follow-up study of the urine samples obtained in the NHANES study. Only about one-third of the urine samples collected by the CDC were analyzed for perchlorate and included in last year's study. The CDC is currently analyzing the remaining two-thirds of the urine samples to determine whether the results are comparable. OEHHA will be in a better position to interpret the results of the original findings after this confirmatory study is completed.
- The CDC study found perchlorate in the urine samples of all study participants, which indicates that some level of perchlorate exposure is common throughout the population. Furthermore, other substances to which the public is commonly exposed, such as thiocyanate, can also affect thyroid hormone levels. It is important to clarify how substances such as perchlorate and thiocyanate influence the normal variation of thyroid hormone levels that is observed across the population. This will better enable OEHHA to identify any needed revisions to the PHG that would be necessary to protect the general population, as well as sensitive subgroups such as pregnant women, fetuses and infants. OEHHA staff scientists are exploring this issue in their discussions with CDC and risk assessors from throughout the United States.

In summary, the CDC study and other newly available data provide substantial new information of great interest to OEHHA. Further inquiry into questions raised by the CDC study, and other new data on perchlorate, will help ensure the highest quality of the upcoming 2009 review of the perchlorate PHG that is mandated by state law. Gaining a thorough understanding of the latest scientific information on perchlorate has been, and will continue to be, a high priority for OEHHA.

I appreciate your continuing interest in perchlorate and your perspective on the significance of recent information on perchlorate. If you have any questions, please contact me at (916) 322-6325 or Dr. George Alexeeff, OEHHA Deputy Director for Scientific Affairs, at (510) 622-3202.

Sincerely



Joan E. Denton, Ph.D.

Director

Enclosure

References

Blount BC, Pirkle JL, Osterloh JD, Valentin-Blasini L, Caldwell KL. 2006a. Urinary perchlorate and thyroid hormone levels in adolescents and adult men and women living in the United States. *Environ Health Perspect.* 114(12):1865-71.

Blount BC, Valentin-Blasini L, Osterloh JD, Mauldin JP, Pirkle JL. 2006b. Perchlorate exposure of the US population, 2001-2002. *J Expo Sci Environ Epidemiol.* (Epub ahead of print).

Ginsberg GL, Hattis DB, Zoeller RT, Rice DC. 2006. Evaluation of the US EPA/OSWER preliminary remediation goal (PRG) for perchlorate in groundwater: focus on exposure to nursing infants. *Environ Health Perspect.* doi:10.1289/ehp.9533. Available online at <http://dx.doi.org>